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EXAMINER

KLINGER, SCOTT M

ART UNIT	PAPER NUMBER
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2153

DATE MAILED: 04/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/543,055

Applicant(s)

PARUPUDI ET AL.

Examiner

Scott M. Klinger

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2004.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-24, 26-32, 34-52 and 54-79 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-3, 5-24, 26-32, 34-52 and 54-79 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-3, 5-24, 26-32, 34-52, 54-79 are pending.

Response to Arguments

Note: Applicant's remarks are in **bold** text. Examiner's responses are indented.

Applicant respectfully submits that Merriam's system and method have no need whatsoever for tracking its positioning device. That is, Merriam's positioning device determines its current location and whether it is safe to dig at that current location. When Merriam's positioning device is moved to a next location, it is of no consequence whatsoever where the positioning device has been in the past. The only thing that is of any consequence with respect to the next location, is whether it is safe to dig at that next location. Accordingly, the motivation to combine these references, i.e. to track Merriam's device, misplaced at best.

There appears to be no logical or technically meaningful reason for Merriam's device to be tracked after it performs its function at a particular location. In addition, there do not appear to be any inefficiencies associated with Merriam's approach that would be mitigated by incorporating Wang's teachings therein. Hence, the Office's rationale is misplaced and inappropriate. Applicant will now address the specific rejections of the claims.

Applicant's arguments, with respect to the rejection of claims 4-8, 25-29, 33-37, 53-57, 59-63, 65-69, and 80 under USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

Examiner agrees that one of ordinary skill in the art would not be motivated to use the teachings of Wang to modify the device of Merriam for the purpose of tracking said device. However, one would be motivated to store the location information in a

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hierarchical structure as taught by Wang. Upon further consideration, a new ground of rejection is made.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 59 and 65 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 59 and 65 depend on rejected a claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-12, 14, 15, 22-24, 26-32, 34-40, 42,43, 50-52, 54-70, 74-79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Merriam (U.S. Patent Number 6,401,051, hereinafter "Merriam") in view of Wang (U.S. Patent Number 5,539,922, hereinafter "Wang").

In referring to claims 1, 22, 30, 50, 77 Merriam shows substantial features of the claimed invention, including:

- Determining whether any of a number of context providers are available to provide context information that can be processed by the computing device to ascertain its context:

"The positioning stations 106 may be either space-based (e.g. satellites) or terrestrial based (e.g. earth base stations). For purposes of the present invention, any mechanism that is capable of providing positioning signals which may be used to determine the location of an object can serve as a positioning station." (Merriam, col. 2, line 65 – col. 3, line 4), both space-based and terrestrial based context providers have a limited range, and therefore will not be available for every location. Determining whether any context providers are available is inherently implied in a device that uses context providers to determine its location

- Receiving context information from one or more of the context providers that are determined to be available; processing the context information on the computing device to determine the context of the computing device:

"The positioning device receives positioning signals from one or more positioning stations, and based upon the positioning signals, determines the current location of the positioning device" (Merriam, col. 2, lines 16-19)

However, Merriam is silent as to the specifics of how the location is determined. Merriam does not show mapping the context information to a node on a hierarchical tree structure that is carried on the device, the hierarchical tree structure comprising multiple nodes that represent physical or logical entities; and traversing one or more nodes of the tree structure to ascertain a complete context. Nonetheless this feature is well known in the art and would have been an obvious modification to the system disclosed by Merriam as evidenced by Wang.

In analogous art, Wang discloses a multiple tree hierarchical portable communication system and method. Wang shows a communication system with hierarchical system of nodes organized into multiple node trees (Wang, Fig. 12 and Fig. 22), the hierarchical system is capable of tracking the location of the transceiver as it moves between nodes and the hierarchical tree structure (Wang, col. 12, lines 18-41).

Given these teachings, a person of ordinary skill in the art would have readily recognized the desirability and the advantage of modifying the system of Merriam so as to map the context information to a node on a hierarchical tree structure, such as taught by Wang, in order to determine the location of the device.

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In referring to claims 2, 3, 23, 24, 31, 32, 51, 52, 78, and 79 Merriam in view of Wang shows,

- The computing device is a mobile computing device.

“As shown in FIG. 2a, the positioning device 102 comprises a main bus 210 and a plurality of components coupled to the main bus 210, including a processor 212, a storage 214 (e.g. a hard drive), and a working memory 224. The storage 214 contains therein a set of location instructions 216 which are executed by the processor 212 to carry out the methodology of the present invention.” (Merriam, col. 3, lines 44-51), A mobile positioning device that has a processor, storage and a working memory is a mobile computing device.

In referring to claims 5, 26, 34, 54 Merriam in view of Wang shows,

- The traversing comprises traversing multiple hierarchical tree structures that are carried on the device:

“FIG. 22 shows a hierarchical communication system having multiple trees in accordance with a third embodiment of the present invention.” (Wang, col. 18, lines 51-53)

In referring to claims 6, 27, 35, 55 Merriam in view of Wang shows,

- The tree structures are linked:

“Each of the root nodes, 800, 820 and 835 is shown to be coupled the other root nodes in order that a call between a customer at one tree may be made to a customer at another tree.” (Wang, col. 19, lines 8-11)

In referring to claims 7, 28, 36, 56 Merriam in view of Wang shows,

- One of the tree structures comprises nodes that represent geographical divisions of the Earth:

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Wang, Fig. 1 shows a tree structure that comprises nodes that represent geographical divisions of the Earth

In referring to claim 8, 29, 37, 57 Merriam in view of Wang shows,

- One of the tree structures comprises nodes that represent geographical divisions of the Earth, and another of the tree structures comprises nodes that represent an organization-specific structure:

Wang, Fig. 22 shows multiple tree structures 835, 820, and 800. The tree structures 835, 820, and 800 represent geographical locations on the Earth, and are organization-specific, as each represents a state, and each state is an organization with its own governing body.

In referring to claim 9, Merriam in view of Wang shows,

- The computing device is configured to determine whether any of the number of context providers are available:

Merriam, col. 2, line 65 – col. 3, line 4 (see full quote above), both space-based and terrestrial based context providers have a limited range, and therefore will not be available for every location. Determining whether any context providers are available is inherently implied in a device that uses context providers to determine its location

In referring to claim 10, Merriam in view of Wang shows,

- The computing device is configured to determine whether any of the number of context providers are available by polling one or more of the context providers:

A system in which a portable device receives a signal from a context provider and processes said signal inherently implies polling said context provider for said signal

In referring to claim 11, Merriam in view of Wang shows substantial features of the claimed invention, including the system of claim 1. However, Merriam in view of Wang is silent as to the exact operation of the context providers. In the system of Merriam in view of Wang a mobile

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device relies on context providers to operate. A person of ordinary skill in the art would have readily recognized the desirability and the advantage of configuring said device to receive events that pertain to the status of the context providers, as the context providers are necessary for the operation of said device.

In referring to claims 12 and 40, Merriam in view of Wang shows substantial features of the claimed invention. However, Merriam in view of Wang is silent as to how the system would operate if no context providers were available. A person of ordinary skill in the art would have readily recognized the desirability and the advantage of implementing the system of Merriam in view of Wang to use a default value because there is no other way to obtain one.

In referring to claims 14 and 42, Merriam in view of Wang shows substantial features of the claimed invention. However, Merriam in view of Wang is silent as to how the system would operate if no context providers were available. The purpose of the device of Merriam in view of Wang is to determine the context of said device. A person of ordinary skill in the art would have readily recognized the desirability and the advantage of implementing the system of Merriam in view of Wang to continue searching for context providers when none are available so as to provide the context of the device once a context provider becomes available.

In referring to claims 15 and 43, Merriam in view of Wang shows substantial features of the claimed invention. However, Merriam in view of Wang is silent as to how the system would operate if no context providers were available. The purpose of the device of Merriam in view of Wang is to determine the context of said device. A person of ordinary skill in the art would have readily recognized the desirability and the advantage of implementing the system of Merriam in view of Wang to use the current context until one or more context providers becomes available, as there is no other means to determine the context.

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In referring to claim 38,

- The computing device is configured to determine whether any of the number of context providers are available:

Merriam, col. 2, line 65 – col. 3, line 4 (see full quote above), both space-based and terrestrial based context providers have a limited range, and therefore will not be available for every location. Determining whether any context providers are available is inherently implied in a device that uses context providers to determine its location

In referring to claim 39,

- The computing device is configured to determine whether any of the number of location providers are available by polling one or more of the location providers:

A system in which a portable device receives a signal from a context provider and processes said signal inherently implies polling said context provider for said signal

In referring to claims 58, 60-64, and 66-69 Merriam in view of Wang shows,

- A mobile computing device that embodies the computer-readable medium of the above claims:

Merriam, Fig 2A, shows a computing device 104

In referring to claim 70 Merriam shows substantial features of the claimed invention, including:

- Receiving context information from one or more of the context providers that are determined to be available; processing the context information on the computing device to determine the context of the computing device:

“The positioning device receives positioning signals from one or more positioning stations, and based upon the positioning signals, determines the current location of the positioning device” (Merriam, col. 2, lines 16-19)

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- Updating the current context of the device by receiving additional context information from one or more context providers:

Merriam, Fig. 3 shows a step of transporting the device 302 and determining the current location 306, updating the context information when the location changes is inherently implied

However, Merriam is silent as to the specifics of how the location is determined. Merriam does not show mapping the context information to a node on a hierarchical tree structure that is carried on the device, the hierarchical tree structure comprising multiple nodes that represent physical or logical entities; and traversing one or more nodes of the tree structure to ascertain a complete context. Nonetheless this feature is well known in the art and would have been an obvious modification to the system disclosed by Merriam as evidenced by Wang.

In analogous art, Wang discloses a multiple tree hierarchical portable communication system and method. Wang shows a communication system with hierarchical system of nodes organized into multiple node trees (Wang, Fig. 12 and Fig. 22), the hierarchical system is capable of tracking the location of the transceiver as it moves between nodes and the hierarchical tree structure (Wang, col. 12, lines 18-41).

Given these teachings, a person of ordinary skill in the art would have readily recognized the desirability and the advantage of modifying the system of Merriam so as to map the context information to a node on a hierarchical tree structure, such as taught by Wang, in order to determine the location of the device.

In referring to claim 74, Merriam in view of Wang shows,

- The context comprises location:

The context information in both Merriam and Wang is location information

In referring to claim 75, Merriam in view of Wang shows substantial features of the claimed invention, including:

- The system of claim 70 (see 103 rejection above)
- The device is a mobile computing device:

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Merriam, col. 3, lines 44-51 (see full quote above); a mobile positioning device that has a processor, storage and a working memory is a mobile computing device.

However, Merriam in view of Wang does not explicitly show that the device is handheld. The device of Merriam in view of Wang is transported to various locations and is therefore portable. A person of ordinary skill in the art would have readily recognized the desirability and the advantage of implementing the system of Merriam in view of Wang as a handheld device in order to minimize the size and weight of said device to facilitate transportation.

In referring to claim 76, Merriam in view of Wang shows,

- One or more computer-readable media having computer-readable instructions thereon which, when executed by the computing device, cause the computing device to implement claim 70:

Merriam, Fig 2A, shows a mobile computing device 104 with computer-readable instructions 216

Claims 13, 16-21, 41, 44-49, and 71-73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Merriam in view of Wang and in further view of Ranger (U.S. Patent Number 6,301,584, hereinafter "Ranger").

In referring to claims 13 and 41, although Merriam in view of Wang shows substantial features of the claimed invention, Merriam in view of Wang does not show the use of a confidence/trust parameter. Nonetheless this feature is well known in the art and would have been an obvious modification to the system disclosed by Merriam in view of Wang as evidenced by Ranger.

In analogous art, Ranger discloses a data integration system and method gathers information dynamically from one or more data sources. Ranger shows using a confidence/trust parameter to resolve conflicts between information received from to context sources: *"Agent A returns with not one but two "Bob Smith", one living in New York and the other in Newark. Determining*

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whether there are two persons named Bob Smith or only one with a conflicting address depends on how much to trust Agent A to be accurate or, in other words, whether its data source contains the correct addresses. For this purpose, a reliability or confidence parameter 227-8 is assigned to the agent. If the confidence parameter for agent A is 100%, then there are two persons named Bob Smith and two entities are thus shown to the user. On the other hand, if Agent A has a confidence parameter of only 10%, then the one entity is produced, showing two possibilities for a property value, e.g. "New York OR Newark"." (Ranger, col. 19, lines 55-67)

Given these teachings, a person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the system of Merriam in view of Wang so as to use a confidence/trust parameter, such as taught by Ranger, in order to resolve any conflicts between information received from the context sources.

Although Merriam in view of Wang in further view of Ranger shows substantial features of the claimed invention, including the system above, Merriam in view of Wang in further view of Ranger does not show decreasing the confidence parameter over time when no context providers can be found. The confidence parameter in the system of Merriam in view of Wang in further view of Ranger provides a means for gauging the accuracy of the context data. If no new data can be received from context providers, the system would be unable to verify that the current context is correct. A person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the system of Merriam in view of Wang in further view of Ranger to decrease the confidence parameter over time when the system has no way of knowing if the device is being transported.

In referring to claims 16-21 and 44-49 although Merriam in view of Wang shows substantial features of the claimed invention, Merriam in view of Wang does not show ordering the context providers in accordance with a confidence/trust parameter. Nonetheless this feature is well known in the art and would have been an obvious modification to the system disclosed by Merriam in view of Wang as evidenced by Ranger.

In analogous art, Ranger discloses a data integration system and method gathers information dynamically from one or more data sources. Ranger shows using a confidence/trust parameter to

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resolve conflicts between information received from to context sources: *Ranger, col. 19, lines 55-67* (see full quote above)

Given these teachings, a person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the system of Merriam in view of Wang so as to use a confidence/trust parameter, such as taught by Ranger, in order to resolve any conflicts between information received from the context sources.

In referring to claims 71-72, although Merriam in view of Wang shows substantial features of the claimed invention, including the system of claim 70 (see 103 rejection above), Merriam in view of Wang does not show ordering the context providers in accordance with a confidence/trust parameter. Nonetheless this feature is well known in the art and would have been an obvious modification to the system disclosed by Merriam in view of Wang as evidenced by Ranger.

In analogous art, Ranger discloses a data integration system and method gathers information dynamically from one or more data sources. Ranger shows using a confidence/trust parameter to resolve conflicts between information received from to context sources: *Ranger, col. 19, lines 55-67* (see full quote above)

Given these teachings, a person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the system of Merriam in view of Wang so as to use a confidence/trust parameter, such as taught by Ranger, in order to resolve any conflicts between information received from the context sources.

In referring to claim 73, although Merriam in view of Wang and in further view of Ranger shows substantial features of the claimed invention, Merriam in view of Wang and in further view of Ranger does not show conflicts are resolved on the basis of physical world constraints to travel. Nonetheless this feature is well known in the art and would have been an obvious addition to the system disclosed by Merriam in view of Wang and in further view of Ranger.

The system disclosed by Merriam in view of Wang and in further view of Ranger determines the location of a mobile computing device by receiving signals from various context providers.

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If the current location of the device were somewhere in Florida, and within a small time frame the device starts to receive a first signal with a location in California, and a second signal with a location in Georgia, it would be obvious to have the system automatically choose the signal that shows the location to be Georgia. The Georgia signal would be more likely, due to the time it takes to travel from Florida to the other locations. A person of ordinary skill in the art would have readily recognized the desirability and advantages of implementing the system of Merriam in view of Wang and in further view of Ranger to recognize obvious errors based on geographical constraints.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott M. Klinger whose telephone number is (571) 272-3955. The examiner can normally be reached on M-F 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Burgess can be reached on (571) 272-3949. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Scott M. Klinger
Examiner
Art Unit 2153

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